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USAF AIRPOWER IN WAR: PURSUIT OF DESTRUCTIVE,
DISCRIMINANT, AND COERCIVE EFFECTS

by

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Preface

I would like to thank Wing Commander Stephen Cockram, the British Royal Air Force, for his dedication and patience throughout the development of this project. His diligence focused me; his compassion motivated me. This product would never have come to fruition save his willingness to take a chance with me—thank you sir! I would be remiss, however, should I fail to acknowledge others who played significant roles in developing my understanding of airpower throughout my career. To this end, I would like to thank Lt Col Steve Butler, Lt Col Larry Weaver (USAF, Ret), Col John Warden (USAF, Ret), Dr Rich Muller, Lt Col Chris Cain, and all of my past and present ACSC colleagues—both faculty and students—who challenged me to think “outside the box.” To these patriots I owe my greatest appreciation and deepest respect.

Abstract

The debate regarding airpower's ability to contribute to victory in war continues to overshadow the real issues related to its ability to achieve desired effects in war. The USAAF/USAF experience demonstrates that the pursuit of "destruction" dominated almost 80 years of airpower thought, development, and employment. A second period revolves around Operation Desert Storm, the first parallel use of airpower to achieve strategic effects through discriminant targeting. Marked as the last "Cold War" engagement, lessons learned regarding airpower's range, speed, and mass were set aside in the third, still evolving, era. Characterized by Operations Deliberate Force and Allied Force—and the still transforming Operation Enduring Freedom—airpower employment in this period has centered on efforts to coerce the enemy to capitulate even though it possessed the physical capacity to continue fighting. Together, these three eras capture airpower's evolutionary development, one demonstrating that the definition of "effectiveness" must adjust to reflect accurately airpower's contribution to success in the absence of decisive victory.

Chapter 1

Airpower's Evolving Role in War

If we should have to fight, we should be prepared to do so from the neck up instead of from the neck down.

—Jimmy Doolittle

Airminded proponents have continuously touted airpower as the panacea for the ills humanity experienced during the “war to end all wars,” World War I, wherein millions of deaths resulted from ground-based trench warfare. Since its inception in the early 1900s, airmen—theorists and operators alike—argued that airpower would transform completely the context of modern warfare.¹ As *the answer* to the problem of stalemated positional warfare, airpower promised to achieve strategic objectives quickly and decisively, thereby negating both the potential and the need for protracted land warfare, especially the type experienced at Verdun and the Somme. As one reflects upon US airpower’s application, it becomes apparent that critics have evaluated it as most “effective” (i.e., produced the “desired effects” or desired results) when its operational and tactical application has paralleled accepted doctrine, a phenomenon that calls into question the very process by which airpower’s effectiveness is measured. Yet, in instances wherein the character of the conflict has not paralleled doctrine, airpower has proven less effective and has been critiqued harshly for its inability to produce “closure” in the battlespace.² This research draws upon US historical examples to demonstrate the validity of this

perspective, illustrating that three “eras” provided the foundation for airpower to serve in new capacities as the United States transformed its military to meet emerging capabilities of those hostile to both its people and its interests. It is crucial to acknowledge from the outset that others would choose to argue differently based upon alternative data sets; however, in the interest of time and space, this work concentrates solely on USAF airpower’s accomplishments compared to established doctrine. With this caveat in mind, the assessment approaches the evaluative challenge by framing effectiveness in terms of “desired effects,” demonstrating that three broad periods correspond to three types of effects: (1) World War I through the 1980s focused on destruction of the enemy’s capacity to fight, an approach that would manifest in nearly 40 years of AirLand Battle doctrine,³ (2) the early 1990s moved beyond “destruction” to include the other “4Ds”—deny, degrade, delay, and deter—thereby serving as a more discriminant tool of policy,⁴ and (3) 1995 to present as it incorporates coercion as a central tenet of aerial warfare.

Basis for Analysis

The genesis of this research rests with the ongoing debate regarding airpower’s efficacy in the absence of presidential commitment to use ground forces according to their traditionally embraced *prescribed mission*: “to fight and win the nation’s wars and achieve directed national objectives.”⁵ The focus seems to have surrounded an issue few want to discuss: What does “fight and win” mean? As an extension of these criteria, the armed forces evaluate their contributions to victory. Clearly, the US Army conceives of this relationship between fighting and winning in terms of territorial occupation as the means to political triumph: “Land operations seize the enemy’s territory and resources, destroy his armed forces, and eliminate his means of controlling his population. Only

land forces can exercise direct, continuing, discriminate, and comprehensive control over land, people, and resources.”⁶ Herein lies the paradox—since airpower cannot “occupy” in the classic sense of having “boots on the ground,” does that diminish the role it plays in “fighting and winning” our nation’s wars? As an outgrowth of the Army’s traditional culture, this study advances the hypothesis that the longest and most exercised period of airpower employment reflects the Army’s preoccupation with destruction as a natural extension of its two-dimensional AirLand Battle worldview, one that defines “fight and win” in ways that contemporary US leadership, its coalition partners, and the USAF no longer embrace as *the* seminal criterion for victory in war. Rather, destruction proves merely one type of desired effect. The nature of the threats to national security within the globalized strategic environment demands flexibility in pursuing strategic objectives. Such flexibility transforms classic notions of airpower effects beyond destruction, at last taking advantage of the inherent flexibility and versatility airpower offers to produce nuanced effects in terms of discriminant strikes and coercion in lieu of utter destruction.

Research Outline

To understand the significance of this paradigmatic shift away from the Army’s approach to defining victory, we must comprehend the nature of the three periods that dominate US airpower development. The ensuing chapters provide that analysis, revealing crucial linkages between evolving definitions of victory and decisions regarding targeting for effect as they influenced each of the three major eras—destruction, discrimination, and coercion—as a precursor to a fourth, still evolving approach, that of airpower as a prevailing psychological weapon of war.⁷

Implications

The events of 11 September 2001 have etched a new reality upon our senses: The world becomes less stable daily and no one—not even the world’s remaining superpower—proves immune from the emerging anarchy.⁸ Consequently, decision makers at all levels must reassess their approaches to foreign policy, thinking innovatively, early, and often regarding the utility of armed force employment as a means to achieve national objectives. As future senior military leaders, today’s field grade officer must recast his or her approach to thinking about airpower in terms of what it can do to sustain national security beyond mere “national defense” (e.g., fighting and winning the nation’s wars). As this study shows, airminded people have begun to transform the ways they envisage airpower’s desired effects as political weapons in war. Absent a symmetrically equipped enemy who fights according to US doctrine, thinking must respond to multiple asymmetric challenges, tests for which the US armed forces may possess little experience, theory, or doctrine. The challenge for airmen remains one of moving beyond seeing every problem as one of “targeting for destruction,” a mindset that shackled US airpower development for nearly a century.

Notes

¹ John Buckley, *Air Power in the Age of Total War* (Bloomington, Ind.: Indiana University Press, 1999).

² Mark Clodfelter, *The Limits of Air Power : The American Bombing of North Vietnam* (New York

London: Free Press ;

Collier Macmillan, 1989), Benjamin S. Lambeth, *The Transformation of American Air Power, Cornell Studies in Security Affairs*. (Ithaca, N.Y.: Cornell University Press, 2000).

³ Admittedly, Strategic Air Command intended to use airpower as the single instrument to deter, then to devastate the enemy should deterrence fail. This said, beyond deterrence the overwhelming focus remained on *destroying* the enemy’s capacity to fight

Notes

throughout this period. For an exceptional overview of the development of AirLand Battle doctrine in terms of the USAF's Tactical Air Command's role in its acceptance, see Richard P. Hallion, *Storm over Iraq: Air Power and the Gulf War* (Washington & London: Smithsonian Institution Press, 1992).

⁴ It is necessary to acknowledge here that JMEMS incorporated effects beyond mere "destruction" well before the 1990s, yet only in rudimentary ways. However, not until Operation Desert Storm did airmen internalize the possibilities these effects held for success in warfare. Further, weaponeering still does not anticipate levels of effects over time. For example, if you ask a weaponeer to suggest the proper approach to deny the enemy the use of a facility for a specific range of time, you will probably get an unsatisfactory answer. This occurs because (1) planners are not specific enough, (2) weapons are not discriminant enough, or (3) post-strike measurement is not sophisticated enough.

⁵ US Army Training and Doctrine Command, *Field Manual 3-0: Operations* (Washington, D.C.: Headquarters Department of the Army, 2001), 1-2.

⁶ Ibid., 1-6.

⁷ Stephen T. Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941-1991: Lessons for U.S. Commanders, Project Air Force* (Santa Monica, CA: RAND, 1996).

⁸ United States Commission on National Security/21st Century, *New World Coming: American Security in the 21st Century: Major Themes and Implications* (Washington, D.C.: Government Printing Office, 1999).

Chapter 2

Airpower as a Destructive Weapon: Post-World War I through the 1980s

The Strategic Theory postulates that air attack on internal enemy vitals can so deplete specific industrial and economic resources, and on occasion the will to resist, as to make a continued resistance by the enemy impossible.

—Gen Henry “Hap” Arnold

Throughout airpower’s early development, theorists and operators attempted to balance the tension presented through targeting options. While the Italian theorist Giulio Douhet advocated eviscerating the enemy’s will to fight, American airmen opted for targeting the enemy’s physical capacity to wage war. Both approaches, however, relied almost exclusively upon materiel destruction as the desired effect. Captured by Douhet’s ideas as reflected in *The Command of the Air*, airpower would be suited best for pre-emptive, strategic strikes against the enemy’s heartland—negating the enemy’s *will to fight* proved Douhet’s primary focus.¹ In fact, his approach argued that a balanced force structure (i.e., bombers and fighters) would not be necessary as air-to-air engagement would not come to fruition. His “Battleplane” would strike the “eggs in the nest” before the enemy’s air force could prepare either its defense or, more importantly, its offense.² It is from this perspective that airpower is labeled as an “inherently offensive” tool of warfare. Douhet’s ideas would influence America’s most outspoken airpower thinker—

Billy Mitchell.³ The effects of this influence can most clearly be seen in the development of interwar airpower doctrine employed by the United States during World War II (WWII), an approach that focused on finding and destroying enemy targets.⁴

To assess airpower's effectiveness in terms of achieving victory through operational employment, one must acknowledge that such evaluation demands a clear understanding of the context surrounding its employment. Throughout the interwar period leading airpower proponents recognized the value of Douhet's approach. Nevertheless, US military leaders understood that neither their nation's government nor its civil populace would accept the "indiscriminant" targeting of noncombatants: "Mass bombing of cities was simply not then acceptable, and the tone and temper of the nation and its military reflection thus necessitated eschewing Douhet's solution in favor of an argument for precision, even if that was not yet really possible."⁵ Negating the enemy's *capacity to wage war* emerged, therefore, as their paramount objective. Even though Britain's leading airpower advocate, Hugh Trenchard, judged that affecting another's will to fight proved more important by a ratio of 20:1, like Mitchell and the Air Corps Tactical School (ACTS) he too recognized that political and sociocultural factors constrained his ability to target civilian populations.⁶ Consequently, drawing upon "the British World War I experience and the views of Mitchell, Trenchard, and possibly Douhet," US airpower theory and doctrine began to focus predominantly upon what the ACTS labeled the "industrial web theory."⁷

In essence, airpower would "leap over the trenches" to attack a nation's capacity to build and sustain its fighting forces—its "industrial web" (IW). Mirror-imaged to reflect the burgeoning industrialization of the United States, this approach incorporated all

aspects of society that contributed to a nation's ability to wage war. Private industry, transportation, electricity, and so forth, became logically and morally acceptable targets in terms of both military necessity and proportionality. In Britain, Trenchard internalized this approach as well, yet he fundamentally believed that effectively destroying a nation's capacity to wage war would at the same time produce demoralizing effects on the people's will to fight since they would no longer willingly enter those areas of society most likely to be targeted.⁸ In the final analysis, Britain's approach paralleled the thinking of US airmen at the ACTS.⁹ This model dominated US air doctrine, ultimately manifesting as AWPD-1 (the production plan to generate wartime airpower requirements for a war in Europe; also included limited target sets). US airpower employed the IW concept, albeit via a somewhat modified form, through AWPD-42 (the operational employment plan that included target sets), and ultimately, US contributions to the Combined Bomber Offensive (CBO). Why is this an important distinction? The US and British approaches to airpower development and employment demonstrate the ways in which contextual elements impinge upon or shape military operational art.¹⁰

The US experience during the CBO demonstrates the flaws inherent in its approach to airpower employment. Although some operators had argued vigorously that fighter escorts would be required to extend the range and capability of strategic bomber formations (e.g., AWPD-1), the US remained trapped within its own dogmatic loop regarding the efficacy of strategic bombardment and IW theory as the "end-all, be-all" doctrine for airpower employment. Consequently, it remained wedded to the idea of high-altitude precision daylight bombardment (HAPDB) at the expense of producing sufficient numbers of "other" role aircraft to protect the bombers. The issue of effectiveness is

evaluated best in terms of the desired effects the CBO hoped to achieve—negating Germany’s capacity to wage war (e.g., destroying war materiel and sustaining industrial capacity). As the historical record reflects, the CBO did not produce these effects in the ways airpower theorists/operators envisaged.¹¹ In fact, the amended Casablanca Directive framing Operation Pointblank questioned in “real time” airpower’s ability to bring the war to a close as it contended airpower’s role would be to prepare the battlespace for the impending ground invasion—the military component that is credited with bringing about closure in the form of “victory.” Max Hastings goes so far as to contend that:

The Second World War confirmed the decisive importance of aircraft in tactical support of ground and naval operations. But the conflict’s message was far less certain about the effectiveness of bombing either as a means of destroying an enemy’s industrial capacity to wage war or in a long-range interdictory role, preventing an enemy from moving men and weapons to the battlefield. No one disputed that air attack had inflicted great damage upon lines of communications. Yet the fact remained that the Germans had been able to continue moving sufficient supplies to the front to fight with formidable effect for the last eleven months of the war, even in the face of absolute Allied command of the air.¹²

In similar fashion, strategic bombardment in the form of the IW approach proved ineffective in the air war in the Pacific.

Japan did not rely upon a concentrated industrial web to sustain its war machine to the same degree as that required by Germany. Nonetheless, airmen earnestly applied IW strategic bombardment theory within this altered context. Not until Arnold’s intervention to change from the mirror-imaged IW approach to firebombing Japanese cities did airpower seemingly begin to contribute to bringing the war in the Pacific to a close. Interestingly, however, we see a shift in objectives as the US approach moved away from targeting *capacity to fight* toward undermining the Japanese populace’s *will* to fight. Thus, we again see that Mitchell’s and ACTS’s original ideas regarding airpower’s

ability to isolate the populace from the destruction of war and focus the war effort directly on the enemy's "war machine" proved fruitless in the absence of a peer competitor whose war machine mirrored that of the United States. While there are those who argue that the atomic bombs terminated the Japanese people's will to continue the fight, the evidence suggests this is an oversimplification of the circumstances surrounding the war termination effort.¹³ Nevertheless, the "bomb" had finally achieved the goal pursued by airpower advocates. Hastings maintains, "It was The Bomb, and the USAF's new stature as its carrier, that clinched the American Air Force argument for becoming a separate and equal service in 1947."¹⁴ Gen Curtis E. LeMay, Chief of Staff, USAF, asserted in 1961 that, "I think we have been consistent in our concepts since the formation of GHQ Air Force in 1935. Our basic doctrine has remained generally unchanged since that time."¹⁵ Moreover, noted historian Earl Tilford posits, "The Air Force was prepared to fly into Vietnam against guerilla forces on the wings of the same conventional strategy used in bombing Nazi Germany in 1944."¹⁶ As a natural extension of its internal validation process, the USAF advanced strategic bombardment capabilities as it poured the "lion's share" of funding into big bombers.¹⁷ Yet, how did the USAF reach these conclusions *in 1961* in light of an earlier Pacific air war experience that provided incontrovertible evidence that the dogmatic application of doctrine that ignores the societal context also fails to achieve military and national objectives when focused myopically upon destroying the enemy's *capacity to fight* as the sole desired effect? The United States did not internalize these lessons as it moved into the post-Cold War period. Consequently, airmen did not advance doctrine or provide for the appropriate force structure in light of these lessons.¹⁸ This error ensured airpower again would prove ill-

prepared for challenges that did not conform to strategic bombardment theory's fundamental assumptions, wars fought under the "nuclear umbrella" in ways that demanded controls on escalation as a means to prevent nuclear holocaust.

USAF airpower employment in both Korea and Vietnam failed to capitalize upon the lessons "offered" through the Pacific experience, especially in terms of the targeted environment and the enemy's reliance upon organic logistical support. Instead of stepping back to analyze the practice of airpower employment within a context that differed sharply from IW theory, the United States again applied a "one size fits all" approach. National leaders and experienced airmen classified the Korean and Vietnam experiences as anomalies. Noted Korean historian Robert Futrell contends, "There was much to be learned from the experiences of combat, but nearly every lesson of the Korean conflict had to be qualified by the fact that the Korean war had been a peculiar war, which was *unlike wars in the past and was not necessarily typical of the future.*"¹⁹

The dogmatic application of USAF airpower theory and doctrine throughout this period circumscribed airpower's ability to prepare for and to meet effectively the challenges posed by enemy forces within their native environments. Because some airmen designated the Korean experience as a type of war that would never again materialize, lessons that could have informed airpower's employment in Southeast Asia were never made manifest.²⁰ For example, the use of heavy and medium bombers against porters and bullock carts in Korea revealed that there were "pitifully few targets in North Korea large enough to justify attack by bombers in the big formations they were trained and accustomed to fly."²¹ This "lesson" should have served as an anchoring point for Vietnam's air planners, alerting them that the Viet Cong's similar lack of reliance upon

established and predictable logistical lines paralleled the Korean experience; clearly, it did not.²² Only when the nature of the war changed in Vietnam to the degree that the North Vietnamese began to fight a conventional war that paralleled US doctrine did airpower begin to prove “effective” in interdicting logistical lines, thereby negating the North Vietnamese Army’s capacity to fight (viz., LINEBACKER I/II).²³ As with the Pacific air war’s transition from IW targeting to firebombing Japanese cities (coupled with the use of two atomic bombs), US efforts to destroy the enemy’s capacity to wage war in Vietnam fell far short of airpower’s strategic bombardment promise. In the first instance, airmen divorced themselves from their doctrine to achieve their objective; in the second, the enemy changed the nature of the war to fit the US doctrine, thereby enabling airmen to achieve their objective.

In the aftermath of these experiences, the USAF’s narrow-minded focus on the development of strategic bombardment capabilities primarily in terms of nuclear strategy—coupled with the USAF’s contributions to securing a “tie” and a “loss”—enabled the Army’s principle of using airpower to enhance maneuver to dominate nearly 50 years of USAF doctrine and airpower employment.²⁴ Known as AirLand Battle doctrine, the Army’s foundation doctrine, Field Manual (FM) 100-5, *Operations*, posited that because all “services are ‘equal’ and work together to defeat the enemy, air *support* must be coordinated with the main effort.”²⁵ This mindset overshadowed all other efforts to think of airpower in terms beyond close air support at the lower end of the conflict spectrum, contrasted with all-out nuclear holocaust at the other. Hence, AirLand dogma contributed to myopic *counterforce* notions rather than development of the *countervalue*

approaches that a highly interdependent world community would demand when presented with the destruction of modern war “in real time” via a globally networked mass media.

Summary

Admittedly an abridged recapitulation of US airpower employment from inception to the late 1980s, this review demonstrates that this first—and longest—period’s myopic focus on strategic bombardment theory hindered the development of a more balanced approach, both doctrinally and in terms of force structure, one that could have optimized airpower’s inherent capabilities during the interwar period and beyond. By focusing almost exclusively upon *destruction*, airmen failed to maximize the flexibility and versatility airpower offered in diverse contexts. The collective results of these experiences—or, at the very least, the continued, polarized debate regarding strategic bombardment’s contributions to “victory” in these cases—call into question the utility of *destruction* as airpower’s primary desired effect. Building upon his own Vietnam experience and years of study regarding airpower’s role in modern war, Col John Warden would transform Air Force thinking in the early 1990s. Thus, airpower employment in Desert Storm marks the beginning of the second period, one based upon discriminant strikes designed to achieve a variety of effects beyond the mere destruction of the enemy’s capacity to wage war.

Notes

¹ Giulio Douhet, *The Command of the Air* (Washington, D.C.: Office of Air Force History : For sale by the Supt. of Docs. U.S. G.P.O., 1983).

² Ibid., 53-54.

³ James A. Mowbray, “Air Force Doctrine Problems 1926-Present,” *Airpower Journal* 9, no. 4 (1995).

Notes

⁴ Daniel Byman, Matthew C. Waxman, and Eric V. Larson, *Air Power as a Coercive Instrument* (Santa Monica, CA: Rand, 1999).

⁵ Mowbray, "Air Force Doctrine Problems 1926-Present," 3.

⁶ Phillip S. Meilinger and Air University (U.S.). Air Command and Staff College. School of Advanced Airpower Studies., *The Paths of Heaven: The Evolution of Airpower Theory* (Maxwell Air Force Base, Ala.: Air University Press, 1997).

⁷ Robert T. Finney, *History of the Air Corps Tactical School, 1920-1940*, Reprint ed. (Maxwell AFB, AL: Air Force Historical Center, 1992), Mowbray, "Air Force Doctrine Problems 1926-Present," 2.

⁸ Meilinger and Air University (U.S.). Air Command and Staff College. School of Advanced Airpower Studies., *The Paths of Heaven: The Evolution of Airpower Theory*.

⁹ In practice during the Combined Bomber Offensive (CBO), the RAF would attempt to affect the enemy's will to fight, flying nighttime bombing missions to augment the USAAF's daylight effort. Together, these approaches ensured 24-hour bombing operations could be prosecuted in Germany.

¹⁰ Larry A. Weaver and Robert D. Pollock, "Campaign Planning for the 21st Century: An Effect-Based Approach to the Planning Process," in *War Theory*, ed. M. Kwolek and G. Story (Montgomery, AL: Air Command and Staff College, 1995).

¹¹ Center for Aerospace Doctrine Research and Education CADRE, *The United States Strategic Bombing Surveys* (Maxwell AFB, AL: Air University Press, 1945; reprint, October 1987).

¹² Max Hastings, *The Korean War* (NY: Simon & Schuster, 1987), 253-54. Interestingly, the USSBS argues quite the opposite given direct testimony from the Germans. See CADRE, *The United States Strategic Bombing Surveys*. Note also that it is important to acknowledge that measures of precision, strike assessment, enemy countermeasures, and global strategy combined to complicate the process of translating interwar doctrine into actual operations.

¹³ John W. Dower, *Embracing Defeat: Japan in the Wake of World War II* (NY: W.W. Norton, 1999).

¹⁴ Hastings, *The Korean War*, 254.

¹⁵ Gen Curtis E. LeMay, address to the Air Force Association, 21 September 1961. Quoted in Earl H. Tilford, Jr., *Setup: What the Air Force Did in Vietnam and Why* (Maxwell Air Force Base, AL: Air University Press, 1991), 1.

¹⁶ Ibid.

¹⁷ Hastings, *The Korean War*.

¹⁸ Mowbray, "Air Force Doctrine Problems 1926-Present."

¹⁹ Robert F. Futrell, *The United States Air Force in Korea, 1950-1953* (Washington, D.C.: Office of Air Force History, 1983), 689.

²⁰ Hastings, *The Korean War*, William W. Momyer, *Air Power in Three Wars [Wwii, Korea, Vietnam]* ([Washington: Dept. of Defense Dept. of the Air Force, 1978).

²¹ Hastings, *The Korean War*, 256.

²² Clodfelter, *The Limits of Air Power : The American Bombing of North Vietnam*.

²³ Ibid.

Notes

²⁴ For a dissenting view positing that the USAF did begin to change its perspective in 1965 toward a more “balanced” force, see Maj John R. Carter, *Airpower and the Cult of the Offensive, The Cadre Papers* (Maxwell Air Force Base, AL: Air University Press, 1998).

²⁵ Quoted in Martin L. Van Creveld, Kenneth S. Brower, and Steven L. Canby, *Air Power and Maneuver Warfare* (Alabama: Air University Press, 1994), 228.

Chapter 3

Airpower as a Discriminant Weapon: INSTANT THUNDER Takes Iraq by Storm

The United States relies on the Air Force and the Air Force has never been the decisive factor in the history of wars.

—Iraqi President Saddam Hussein (1990)

The air campaign was decisive.

—US Secretary of Defense Dick Cheney (1991)

Years of analysis sharpened by professional experience impelled those who experienced the air war in Vietnam to vow never to repeat its mistakes.¹ Foremost among USAF planners, Col John A. Warden III emerged as one of the most innovative thinkers regarding airpower employment on the eve of the United States' greatest commitment of military force since WWII. Air Force Historian Richard Hallion concludes that Warden developed "the clearest American expression of air power [*sic*] thought since the days of Mitchell and Seversky, though considerably more concise, cogent, and balanced."² Affirming the Clausewitzian approach to thinking about the conceptualization and practice of war—particularly the value associated with identifying centers of gravity—Warden developed a "five strategic rings" targeting analysis framework designed to produce parallel cascading strategic effects across the Iraqi system.³ Because airpower had matured technologically and organizationally, it provided the means to "strike across

the spectrum of objectives unconstrained by traditional limitations”—other forms of military force could not achieve such results.⁴ At the turn of the century such capability demonstrates a clear break with traditional conceptions of AirLand Battle—Could airpower’s flexibility and versatility transform modern warfare into a fundamentally different conception of war?

Recognizing airpower as an inherently offensive weapon—one capable of inducing strategic effects quickly and decisively—Warden forced airmen to think in terms far broader than the utter destruction of the enemy’s capacity to fight. Such a mindset extended from “two traditional concepts of war—annihilate the enemy through outright destruction, or exhaust an enemy before he exhausts you (attrition).”⁵ Breaking with tradition, this contemporary airman thought in terms of controlling the enemy state as a living entity rather than using weapons to inflict destruction without exercising control. He recognized that rendering an enemy force useless achieved the same end as eliminating the enemy force in terms of bringing about war termination conditions favorable to the victor.⁶ Consequently, Warden’s Instant Thunder model that served as the basis of Operation Desert Storm’s air campaign considered the nature of the peace the coalition—indeed, the world community—would desire in the aftermath of war.⁷ He designed a campaign plan that would isolate Saddam Hussein from both his forces and his people, taking great care to use airpower’s flexibility and versatility to achieve desired effects beyond destruction. In this case, Warden and his air campaign architects broadened conceptions of desired effects to include denial, degradation, disruption, and delay.⁸ In this manner, airpower became a *discriminant* tool of war—its employment

enabled war fighters to achieve desired effects beyond the destruction of the enemy's physical capacity to wage war.⁹

Using Warden's concept, airmen produced cascading effects across Hussein's system of governmental control, thereby "protecting" the populace—to the greatest degree possible in war—from the adverse side-effects warfare had included prior to this watershed approach to targeting. In effect, airpower planners divorced themselves from the traditional mindset that limited them to the "servicing a target" approach, instead thinking in ways that would "impose force against enemy systems so every effort would contribute directly to the military and political objectives of the Coalition."¹⁰ As he separated the "brain" from the body of the war machine, Warden simultaneously sought to convince the Iraqi people through a focused PSYOP campaign that they had done nothing wrong.¹¹ Rather, he intended his approach to communicate that their leader remained an evil man and their troubles resulted from his narcissistic control.¹² His effort to secure these positive countervalue effects as he employed airpower via parallel attacks proved markedly different from earlier US approaches and the counterforce obligations enforced by Schwarzkopf. Warden envisaged airpower as a mechanism to "shape" not only the battlespace during war, but also the nature of international relations and sociocultural underpinnings (within Iraq, US partners, and the world community) in war's aftermath. Perhaps more than any other modern airpower thinker, Warden understood fully the absolute necessity of maintaining congruence across all three levels of war, arguing that tactical successes may not translate into strategic victories, especially when one looks beyond the war itself toward the *better state of peace*.¹³ Through this vision, Desert Storm capitalized upon the synergies offered via effective application of

the Principles of War, while simultaneously amplifying the contributions of the Tenets of Airpower.¹⁴ Most importantly, however, Warden's approach incorporated the ways in which contextual elements influenced operational art—he designed an air campaign to exploit the advantages of improved logistics, advanced technologies, and organizational connectivity, ensuring that targeting science took full advantage of precision and intelligence innovations. Again, one must evaluate effectiveness in terms of strategic objectives: Airpower did serve as the enabler for success—without it, it is safe to say that the ground campaign would not have been as “bloodless” or as successful in removing the Iraqis from Kuwait and restoring its legitimate government. With respect to the US-led coalition's four strategic objectives for Desert Storm, we also begin to see that airpower can contribute to bringing about a nation's desired effects at the strategic level.¹⁵ Yet airpower cannot “produce the desired effect” of removing ground armies absent one's own ground forces in country. While this should have been an accepted principle in the aftermath of Desert Storm, our experiences in the former Yugoslavia—Kosovo in particular—bear evidence that modern airmen have not internalized this lesson. Nevertheless, these two campaigns mark the beginning of the third period of airpower's evolutionary development, one seeking to coerce adversaries to comply with extra-national directives while limiting the destruction encompassed in the weapons of modern war.

Summary

Today, air-minded leaders recognize more consciously the flexibility and versatility airpower brings to the battlespace in the aftermath of Desert Storm. Most importantly, however, during this evolutionary phase of targeting for effect airmen began to adopt a

more nuanced approach to analyzing the context(s) within which airpower would most likely be employed. In the aftermath of the Cold War, the “Fulda Gap” scenario as manifested in 50 years of the Army’s AirLand Battle doctrine, as well as the likelihood of full-scale nuclear war, began to fade into the background as the emerging challenges attendant to internal wars based upon ethnic tensions as well as secessionist desires pushed to the forefront of the international stage. Building upon institutional memory, a revolutionized Professional Military Education program, and a data set to analyze airpower’s contributions, AFDD-1 (and associated doctrinal guidance) began to incorporate a more comprehensive spectrum of airpower contributions and capabilities. Importantly, the remainder of this work does not suggest that these new challenges exist within contexts that parallel a well-developed body of doctrine. Rather, these air efforts represent a defining moment in airpower’s theoretical and doctrinal evolution—evidenced by the fact that the USAF, institutionally, is now *analyzing* its historical and real-time contributions and *acknowledging* the limitations posed by its overwhelming preoccupation with destruction as the primary effect. A seminal event, Desert Storm expanded the range of desired effects beyond destruction to allow war fighters to discriminate between targets based upon desired effects. Although many argued that airpower doctrine matured through the storm, airpower’s subsequent tests would prove far too politically constrained for a Wardenesque-like Instant Thunder air campaign prosecuted within the context of general or total war (save nuclear exchange). Planned by a generation of officers who had internalized joint war fighting according to the Goldwater-Nichols Act, political restraints forced airmen to think in terms of airpower’s ability to coerce the adversary to capitulate within the framework of *limited war*. Airmen

operationalized this new way of thinking during Operations Deliberate Force and Allied Force, and continue to do so through Operation Enduring Freedom.

Notes

¹ Richard P. Hallion, *Storm over Iraq: Air Power and the Gulf War* (Washington & London: Smithsonian Institution Press, 1992), 116.

² Ibid.

³ Col John A. Warden, III, "The Enemy as a System," in *Concepts in Airpower for the Campaign Planner*, ed. Lt Col Albert U. Mitchum (Maxwell AFB, AL: Air Command and Staff College, 1993). It is important to note that Warden did not capture this approach in his writings until *after* the Gulf War. See also, Col David A. Deptula, *Firing for Effect: Change in the Nature of Warfare* (Arlington, VA: Aerospace Education Foundation, 1995).

⁴ Hallion, *Storm over Iraq: Air Power and the Gulf War*, 152.

⁵ Deptula, *Firing for Effect: Change in the Nature of Warfare*, 9. See also, Gordon A. Craig, "Delbruck: The Military Historian," in *Makers of Modern Strategy*, ed. Peter Paret (Princeton, N.J.: Princeton University Press, 1986).

⁶ Deptula, *Firing for Effect: Change in the Nature of Warfare*. Note that Col Deptula erroneously uses the term "conflict termination" in his discussion. At this point in the campaign's execution, "war termination" is a more appropriate term since conflict termination extends beyond military activities into the political, social, economic, and psychological realms.

⁷ Richard T. Reynolds, *Heart of the Storm: The Genesis of the Air Campaign against Iraq*, vol. Volume one of a two-volume series (Maxwell Air Force Base, AL: Air University Press, 1995).

⁸ At the time of this writing, the author has found no evidence stating that planners actually applied JMEMS criteria in their targeting deliberations.

⁹ In the final analysis, however, sortie generation rates still favored counterforce objectives driven by AirLand Battle dogma under GEN Schwarzkopf's direction. For more information, see Thomas A. Keaney, Eliot A. Cohen, and Gulf War Air Power Survey (Organization : U.S.), *Gulf War Air Power Survey Summary Report* (Washington, D.C.: Office of the Secretary of the Air Force ; For sale by the U.S G.P.O. Supt. of Docs., 1993).

¹⁰ Deptula, *Firing for Effect: Change in the Nature of Warfare*, 13.

¹¹ Warden, "The Enemy as a System."

¹² Hosmer reports that in concert with misgivings regarding their military capabilities vis-à-vis a qualitatively and quantitatively superior US-led force, "Iraqi forces serving in the KTO [Kuwait Theater of Operations] also harbored serious misgivings about the justice and, even more important, the necessity of the cause for which they would be fighting...most Iraqi officers and enlisted personnel considered a war with the Coalition to preserve Iraq's control of Kuwait to be neither essential nor wise." Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941-1991: Lessons for U.S. Commanders*, 158.

Notes

¹³ Col John A. Warden, III, *The Air Campaign: Planning for Combat* (McLean, VA: Pergamon-Brassey's International Defense Publishers, Inc, 1989).

¹⁴ USAF, *Air Force Doctrine Document (AFDD) 1: Air Force Basic Doctrine* (Maxwell AFB, AL: Headquarters Air Force Doctrine Center, 1997).

¹⁵ Office of the US Secretary of Defense OSD, *Conduct of the Persian Gulf War, Final Report to Congress Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991 (Public Law 102-25)* (Washington, DC: GPO, 1992).

Chapter 4

Airpower as a Coercive Weapon: Deliberate Force, Allied Force, Enduring Freedom, and Beyond

Airpower is, above all, a psychological weapon—and only short-sighted soldiers, too battle-minded, underrate the importance of psychological factors in war.

—Sir B. H. Liddell Hart

The thought of airpower as a coercive instrument in war does not represent an epiphany on any level as even Clausewitz argued that war proved an extension of policy to compel the enemy to conform to one's will.¹ However, the conceptualization of airpower as a coercive weapon of war differs fundamentally in that coercion no longer equates to destruction.² Byman, Waxman, and Larson contend coercion is best defined as *“the use of threatened force, including the limited use of actual force to back up the threat, to induce an adversary to behave differently than it otherwise would.”*³ Unlike the previous two eras that sought decision by rendering the enemy physically incapable of fighting when evaluated according to a rational physical force cost-benefit calculus, coercion proves successful when the adversary *chooses* to meet imposed demands when the cost-benefit ratio favors continued violence. Hence, “coercion succeeds when the adversary gives in while it still has the power to resist.”⁴ The crucial question for the two air campaigns in the Balkans regards the decision calculus of Yugoslavia's former leader. As Lambeth points out, we may never know for sure the answer to this question, but it is

imperative that analysts endeavor to discover the “mix of pressures and inducements [that] ultimately led Milosevic to admit defeat . . . since the answers, insofar as they are knowable, may help illuminate the coercive dynamics that ultimately swung the air war’s outcome.”⁵

Throughout the crisis analysis phase of policy development and operational war planning, Milosevic’s decision calculus remained the principal center of gravity during Operations Deliberate Force and Allied Force. US and coalition/allied efforts focused on coercing this rogue leader by pounding him into submission while at the same time insulating the Serb populace from the ravages of war. On some level this approach could be deemed a mere extension of Desert Storm’s *discriminant* targeting approach. On another, however, the contexts differed so sharply that even discriminant destruction would not achieve NATO’s goals. As a result, airpower-planning schemas clearly reflected the limitations US partners placed upon operational airpower employment, not the flexible doctrinal tenets that framed airpower’s use in Desert Storm. For example, Warden’s planners designed Instant Thunder’s employment schema to exploit airpower’s range, speed, and mass, epitomizing the antithesis of the Vietnam generation’s woeful experience with Rolling Thunder “which called for slow and gradual escalation of air activities to allow the enemy time to rethink his predicament and, hopefully, sue for peace.”⁶ Yet, less than a decade after Desert Storm’s airpower success (at the operational level of war), internal NATO diplomatic and political factors would resurrect a gradualism altogether reflective of the US’s Vietnam experience as 19-member nations each played a role in the target approval process.⁷ Hence, even though Lt Gen Michael Short, NATO’s joint force air component commander, did not identify the Serb 3rd Army

in Kosovo as a center of gravity, “NATO authorities wanted to hit the 3rd Army because of a belief that the best way to stop ethnic cleansing was to destroy the instruments of ethnic cleansing directly.”⁸ Constraints of this nature would make a Desert Storm-like approach impossible. Rather than destroy Serbia or discriminately target crucial elements of a “five-ring system” to achieve parallel cascading effects,⁹ NATO would employ airpower in limited fashion to compel Milosevic to agree to a peace accord in the first instance, while coercing him to terminate his advances and allow ethnic Albanian Kosovars to return to their homes without fear of retribution or continued genocide in the second.

As we reflect upon Deliberate Force, we again must assess airpower’s effectiveness in terms of its ability to *contribute* to securing strategic objectives (i.e., retribution for past atrocities reminiscent of Srebrenica, termination of the violence, and bringing about the conditions for a secure and stable Bosnia-Herzegovina). These objectives were in fact achieved, but only after significant changes had occurred on the ground. As the Croatian Army advanced against Serb positions, post-hoc analyses interpreted airpower’s achievements as effective. Yet, we must assess again whether the achievement of those strategic objectives could have been secured absent Croat advances. Post-hoc analysis indicates clearly that by 1995 the Serbs, Croats, and Bosniacs would have continued fighting since the war had taken on a life of its own before US intervention.¹⁰ Consequently, one can make a cogent argument for *airpower as an enabler* or contributor to overall effectiveness (in concert with ongoing diplomatic, economic, informational, and complementary military activities). Beyond this, however, airpower’s employment clearly did not fulfill the original promises promulgated by early airpower theorists and

operators: Airmen did not employ strategic bombardment in the classical sense during this effort.¹¹ It did serve as one additional factor in coercing Milosevic (and his cronies) to recalculate their cost-benefit ratios vis-à-vis continuing the war.¹² In this sense, airpower proved *effective* in concert with the other applied IOPs (viz., economic, diplomatic, political). The case of Allied Force proves even more complex since the US took “ground troops” off the table before the NATO intervention materialized and the Russians withdrew support for Serb actions.

Perhaps for the first time, US airpower unambiguously served as the air arm for another party’s war effort in ways it had never before imagined in terms of the “American way of war.” In essence, NATO airpower served as the Kosovar Liberation Army’s (KLA) air arm as they conducted ground operations. However, US air planners (and others, viz., the Chairman of the Joint Chiefs of Staff) recognized that the nature of the context surrounding the employment of operational art would prove significantly different from Deliberate Force: Kosovo manifest as a domestic problem within an internationally recognized sovereign nation (as opposed to a federation whose select members decided to separate along “state” lines). Airpower alone could not have terminated the violence—absent the KLA, ethnic Kosovar Albanians would either be exterminated or relocated. Because of the nature of the insurgency (much like that presented by the Viet Cong during Rolling Thunder), airpower alone could not have produced the desired effects of terminating the violence or deterring it from recurring in the future. Hence, again we see that airpower failed to prove effective when evaluated according to the criteria put forth by its classical promise—that airpower *alone* could win a nation’s wars. At this point, however, we have to ask whether airpower’s classical

promise is relevant in light of the contextual parameters presented by today's globalized society. Clearly, Douhet, Mitchell, and Trenchard failed to foresee the effects of globalization as their approaches focused on state-based power projection and response methodologies. The ongoing war against terrorism exposes this omission.

Enduring Freedom has, thus far, paralleled the Allied Force experience with one possible exception—the resolve and commitment levels far surpass those related to Allied Force as the resonance associated with the public's mental images is rivaled only by the WWII generation's emotional connection with the Japanese attacks on Pearl Harbor. As the events of 11 September demonstrated, the actions of America's enemies have sparked innovation; consequently, airpower's capabilities are being envisaged and employed more innovatively than at any other period in its brief history.

The United States' spring 2002 engagements during Enduring Freedom again validate calls for the use of ground forces in conjunction with airpower (Operation Anaconda). In this particular instance, airpower forced al Qaeda members into their caves while “smoking” many others out of theirs—permanently. Yet, many terrorists have escaped “justice” by taking advantage of the intricately linked tunnels inside the cave complexes. Airpower cannot trace their movements within these underground tunnels—ground troops must conduct “mop-up” and additional “smoke-out” activities. This joint air-land effort should in no way, however, be characterized as a return to AirLand Battle. Rather, one could argue that “boots on the ground” are creating the conditions wherein airpower will “seal the terrorists' fate” once ground forces push them into a corner or out of the cave network altogether. Together, these air-ground activities are designed to bring

current terrorists to justice while deterring (i.e., coercing) others who might pursue similar strategies to achieve their goals in the future.

The nature of the challenge presented by the fight against terrorism demands airpower be used *in concert with* ground forces. While airpower may be able to “smoke out” bin Laden and other terrorists, it most certainly cannot “hunt down” these evil persons absent timely and effective human intelligence. Consequently, breaking with modern ideas regarding “airpower alone” and surgical strike capabilities, Enduring Freedom enjoys broad-based political, international, and economic support—all efforts remain focused toward eviscerating terrorists and eliminating them from the face of the earth.¹³ Not since the Japanese attack on Pearl Harbor has the American populace so roundly supported a military operation. Because the perspective has changed regarding airpower’s contribution to this type of warfare (e.g., use of the B-52 for close air support), its effectiveness will be evaluated most assuredly against another set of criteria—not that touted as the panacea for the ills of war in the first period, nor that promulgated by Warden and his five-ring systems approach (via parallel warfare to produce cascading effects) in the second. Instead, the desired effects sought throughout the third period—focusing greater attention toward airpower’s ability to coerce the adversary by complementing the inducements of other IOPs (especially diplomacy)—begins to bring us around full circle, back to Douhet’s ideas. After all, Douhet touted the psychological effects airpower promised as the most significant: If one can convince the enemy that fighting is detrimental to its collective well-being, issues regarding the enemy’s skill to fight prove inconsequential. Recall that Sun Tzu likewise recognized the psychological nature of war by saying, “To subdue the enemy without fighting is the

acme of skill.”¹⁴ Hence, if one can coerce an enemy psychologically to fulfill one’s will outright or refrain from fighting, the desired effect has been achieved—the mode proves immaterial.

Summary

Deliberate Force, Allied Force, and Enduring Freedom present a clear break with Desert Storm’s discriminant approach, one designed to negate the enemy’s physical capacity to wage war. Arguably selective in terms of targeting and therefore “discriminant” according to some, these three airpower operations prove fundamentally different in that the US and its coalition/allied partners employed precision weaponry for the purpose of coercing their enemies.¹⁵ While this research makes no attempt to “prove” which elements of US/NATO strategy induced Milosevic to capitulate, or at the very least, cooperate, the prevailing open source literature indicates that airpower played a significant role through its ability to demonstrate persistence and US/NATO willingness to stay the course. Such determination altered Milosevic’s decision calculus as he could no longer prosecute “his wars” when faced with internal political turmoil.¹⁶ The pursuit of coercive effects vice negating the enemy’s physical capacity to fight, therefore, marks a turning point in the development and application of airpower theory. This line of thinking informed the early stages of Enduring Freedom as well, the United States desiring not only to bring Osama Bin Laden, the Taliban, and al Qaeda to justice, but to deter others from engaging in similar behaviors through a process of psychological coercion. Whether this form of coercion will prove effective remains to be seen—only time will tell.

Notes

¹ Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret, trans. Michael Howard (Princeton, NJ: Princeton University Press, 1976).

² Byman, Waxman, and Larson, *Air Power as a Coercive Instrument*.

³ Ibid., 10.; emphasis in original.

⁴ Ibid., 13.

⁵ Benjamin S. Lambeth, *Nato's Air War for Kosovo: A Strategic and Operational Assessment*, *Project Air Force Series on Operation Allied Force* (Santa Monica, CA: RAND, 2001), xiv.

⁶ Reynolds, *Heart of the Storm: The Genesis of the Air Campaign against Iraq*.

⁷ Lambeth, *Nato's Air War for Kosovo: A Strategic and Operational Assessment*.

⁸ John A. Tirpak, "Short's View of the Air Campaign," *Air Force Magazine*, September 1999.

⁹ Warden, "The Enemy as a System."

¹⁰ Susan L. Woodward, "Implementing Peace in Bosnia and Herzegovina: A Post-Dayton Primer and Memorandum of Warning," (The Brookings Institution, 1997).

¹¹ Col Robert C. Owen, *Deliberate Force* (Maxwell AFB, AL: Air University Press, 2000).

¹² Lambeth, *Nato's Air War for Kosovo: A Strategic and Operational Assessment*.

¹³ Indeed, there is little "surgical" about a 15,000 bomb in terms of precision in the technological sense. Although its psychological effects vis-à-vis short-term will to fight trump the requirement for precision in terms of preventing collateral damage, we must recognize that this type of technologically imprecise munition can deliver a psychologically surgical effect in terms of influencing the enemy's will to fight.

¹⁴ S.B. Griffith, ed., *The Art of War (by Sun Tzu)* (Oxford: Clarendon Press, 1963).

¹⁵ Lambeth offers correctly that discriminate targeting was used in Operations Deliberate Force and Allied Force. However, he does not make the same argument presented in this paper, making a clear distinction between discriminant and coercive effects. See Lambeth, *Nato's Air War for Kosovo: A Strategic and Operational Assessment*.

¹⁶ Ibid.

Chapter 5

Conclusion: Airpower as the Weapon of Choice

Airpower alone will not generally determine what transpires on the ground. Only when paired with ground forces—and only if used decisively—can airpower be expected to work.

—Ivo H. Daalder and Michael E. O’Hanlon

The enigmatic issue that has perplexed airminded thinkers throughout airpower’s first century is simply this: Can airpower, absent other military instruments of warfare, win a nation’s wars? As we stand at the precipice of a new era wherein asymmetrical warfare will likely characterize America’s near future, this question proves wholly irrelevant. Rather, policy makers and military leaders must think more innovatively regarding the relative contributions each instrument—including non-violent IOPs—can make to remedying the specific challenge at hand. Remaining mired in debates regarding airpower’s (or any other instrument’s) ability to “fight and win” America’s wars in terms promulgated by US Army doctrine will prove increasingly debilitating—the USAF’s inability to move beyond the pursuit of “destruction” throughout the first 80 years of its cumulative existence manifests as a case in point. Yet, thinkers who prove willing to see beyond their own experience can and do transform the nature of war as we know it. Col Warden emerged as one such thinker, one who revolutionized airpower’s contribution to war during Desert Storm. In the face of such unambiguous operational success, however,

Daalder and O'Hanlon posit appropriately that airpower alone is not likely to determine with great consistency the events on the ground—Deliberate Force, Allied Force, and Enduring Freedom demonstrate the validity of their insight. The seminal question should not focus on the issue of AirLand Battle as “war as usual” or airpower’s prosecution of “a new way of war” that negates the need for ground troops. Such questions represent bureaucratic debates, arguments whose determinations have more to do with institutional equities and personalities than effectiveness in war. As James Mowbray contends, it is time for the USAF to refocus its intellectual efforts on defining its contributions to war, leaving behind its obsessive tendency to continue justifying itself as a separate service.¹

Perhaps airpower will prove “more effective” in an era wherein warfare no longer reflects traditional approaches, approaches that tend to use war as a last resort and engage in warfare according to “gentlemen’s rules.” In an era wherein asymmetric warfare will increasingly become the norm, the use of airpower (in concert with other military tools and the broader range of IOPs) to compel and to deter an adversary may present the most effective use of *power* writ large. Airmen must act cautiously, however, taking great effort to ensure we do not become trapped in a type of dogma that characterized the first period—destruction as “job one.” Simultaneously, airminded professionals must ensure we continue to enhance our ability to secure national objectives through the institutionalized understanding of airpower application, as opposed to depending upon the emergence of the next “Warden” as in the second era. It is in fact this third era—one embracing fully the range of effects airpower can achieve—that represents a turning point in airpower’s history. Recognizing that airpower can prove successful without having to destroy the enemy’s capacity to fight—while leaving that same enemy with sufficient

capability to protect itself against other potential aggressors—provides the United States (and its partners) with the means to employ force in ways that Douhet, Mitchell, and other early airpower thinkers could have only dreamed. Only through such an approach can we mature an airpower theory and associated doctrine to exploit completely the synergies inherent in airpower's flexibility and versatility as the technologically developed world's weapon of choice.

Notes

- ¹ Mowbray, "Air Force Doctrine Problems 1926-Present."

Glossary

ACSC	Air Command and Staff College
ACTS	Air Corps Tactical School
AU	Air University
AWC	Air War College
AWPD	Air War Plans Division
CADRE	College of Aerospace Doctrine, Research, and Education
DOD	Department of Defense
FM	Field Manual
HAPDB	High-altitude Precision Daylight Bombardment
IOP	Instrument of Power
IW	Industrial Web
KLA	Kosovo Liberation Army
NATO	North Atlantic Treaty Organization
OSD	Office of the Secretary of Defense
PSYOP	Psychological Operations
SAAS	School of Advanced Airpower Studies
USAAF	United States Army Air Forces
USAF	United States Air Force
USSBS	United States Strategic Bombing Surveys

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